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ABSTRACT

This manual is the final report on a two-year project to enhance the effectiveness of teaching assistants. It is designed as a workbook for persons conducting instructional programs for teaching assistants and is specific to teaching assistants in engineering and the natural sciences. The manual contains an introduction and six chapters. Chapter one discusses the motivation and beginning processes involved in the project. Chapter two is a list of recommendations for persons beginning similar programs, and chapter three discusses user experiences. Chapter four is a review of selected literature, while chapter five gives a detailed description of the development and use of a teaching assistant survey. The final chapter contains 12 modules designed and used by participants in this project. They are: (1) The Media Show; (2) The Workshop, (3) Enhancing the Effectiveness of a Course Staff; (4) Know Your Audience; (5) Planning by Objective; (6) Initiating Consultation with Faculty; (7) Consulting with Course Staff; (8) Video Taping Teaching Assistants; (9) Problem Solving; (10) Helping Students in Difficulty; (11) Teaching Triads; and (12) Student Evaluation of Teaching Assistants. Each module contains a brief overview, a guide explaining the objective, and a detailed outline of the procedure to be followed. (DMT)

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A PROGRAM TO ENHANCE THE EFFECTIVENESS OF TEACHING ASSISTANTS

BY

COLLEGE OF ENGINEERING
CORNELL UNIVERSITY

WITH FINANCIAL SUPPORT
FROM
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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Introductory Statement

Many graduate students hold appointments as Teaching Assistants while earning advanced degrees. There has been a real need to develop a "short course" including instructional aids aimed at enhancing latent awareness and skills of the many graduate students undertaking teaching responsibilities for the first time.

This handbook contains procedures and hints for undertaking a program of helpful instruction for teaching assistants.

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THE BEGINNING: HOW WE STARTED THE SUBTLE PROCESS OF CHANGE

Much can be learned through history: plans can be viewed in terms of results, successful operations with desirable routines can be duplicated, previous mistakes can be avoided, and experience can be accrued without paying the price of time in attending the "school of hard knocks". This brief historical account of the beginning of the Teaching Assistant Project at Cornell, sponsored by the Susquehanna Fund, provides all these things offering valuable instruction to anyone interested in increasing the efficiency of teaching assistants at their institution.

Our recognition that the effectiveness of teaching assistants needed to be improved was hardly original. There exists a fairly large body of literature documenting the increasing role these persons play in education and decrying their general lack of preparation and training. The "problem of TA's" is routinely discussed at the lunch tables where faculty gather at every institution. Few dispute the problem.

Our first step in seeking a solution was to gather a diverse group around a table and brainstorm -- a common group technique in which thoughts are offered without evaluation -- possible specific problems and solutions for the situation. That was good, but the longer we talked, the more complicated things became: problems and possible solutions multiplied almost uncontrollably. As one might expect, each participant approached the problem in terms of his/her specific background. That might have been disastrous except for the composition of the group, which included a secondary school teacher, a teaching assistant, a graduate student in education, a professor, a

counseling psychologist, an administrative staff member with extensive teaching experience, and a support staff member versed in social science and group dynamics. All except one had had experience as a teaching assistant.

While we were very successful at providing a hotbed of ideas, we were less adept at beginning to do something. Much time was spent trying to reach consensus concerning important ideas and issued, but the group did not agree on the relative importance of the ideas, and consensus on the best way to proceed was impossible. Ultimately the various group members selected areas in which to work. The assignments, which reflected predilections in brainstorming, are instructive: one person began an extensive literature search to determine what other institutions were doing, another began to research "modules" on specific teaching skills, another began a project designed to evaluate the performance of teaching assistants during the course of the term. This phase of our project can be visualized by referring to Figure 1.

While this produced significant personal satisfaction, it was not the most efficient way to proceed. Moreover, all these solutions, it should be noted with care, were aimed at the teaching assistants. They were the problem, and we were going to remake them.

Within a few weeks, conflict developed in the group, with one component accusing the others of not understanding teaching assistants, of not understanding the university system, and insisting that the ideas of others wouldn't, indeed couldn't, work. Out of the ensuing uproar an exceptional thing happened: we realized that maybe we didn't know what we were talking about and despite the extensive brainstorming and consultation, we had not correctly analyzed

the problem. At that moment we also realized that we had fallen into the trap that has precluded teaching assistant development projects for many years. We were expounding our prejudice based on our individually limited experiences. Some retrospectively brilliant individual suggested we undertake a survey of faculty, teaching assistants and students to find out what problems were perceived by these groups and to determine whether there were significant differences in the things each group considered important. One individual took responsibility for this project, and it was added to the tasks enumerated earlier.

As the work continued, the level of frustration increased as the beginning of the fall term approached, and disagreement and controversy within the group became more clearly defined. On the one hand, there were those committed to the original approach of doing something "to" or "with" the teaching assistants themselves; on the other hand there were those who believed it was essential to adopt a "consulting mode" of contracting with specific courses for assistance, then working with teaching assistants, professors, and the department structure in a number of different areas. While the background for these two approaches were personal feelings, the survey did provide important data for both groups. Not only did the data clearly show that almost every course and every professor used teaching assistants differently, with different expectations of the assistants, but they also showed there were a number of areas of common skills that could be expected of almost all teaching assistants.

The group could not reach consensus on "the one way to go" -- so we went both ways. One group prepared a fall workshop and specific skills modules for teaching assistants, Design A. (Figure 1).

The other set about finding a professor or group of professors who were willing to contract their assistants, Design B. This latter group developed modules, or adapted them, as the situation required during the course of the term. Our work for the summer is summarized in Figure 1.

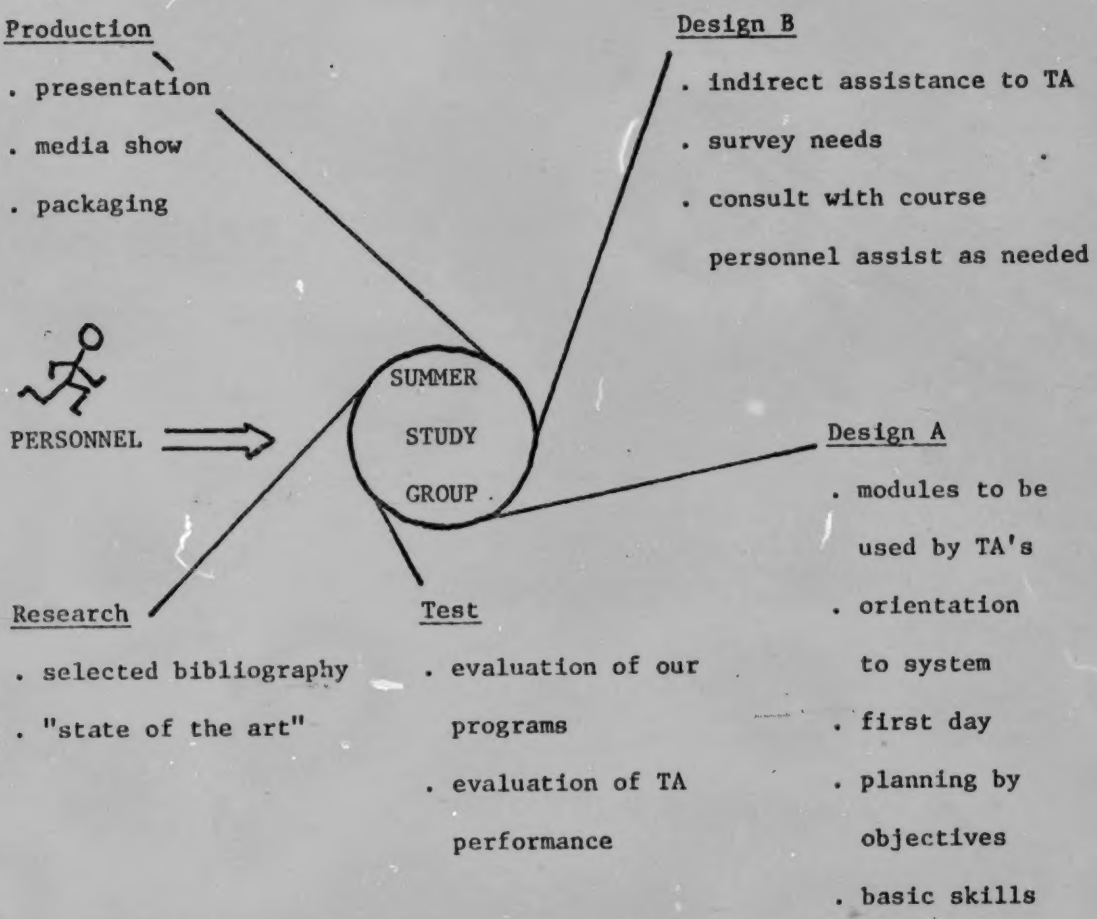

Figure 1

Late in the summer and early in the fall, we began to put our plans into practice. New teaching assistants were invited to a

special workshop which included modules on orientation, planning by objectives, and first day in class. The reaction of the teaching assistants to these modules was monitored through a written evaluation, and the results analyzed to further improve these basic units. Halfway through the term, the performance of participating assistants was evaluated, and the results explained to them, so that they might improve in those areas where a need existed.

While this activity was going on under Design A, which involved direct assistance to teaching assistants, others were active with Design B. These persons finished the summer survey of needs, compiling data for professors, assistants, and undergraduate students. The results were analyzed to assess areas where improvement seemed most desirable. Shortly thereafter, Design B personnel began a search for an appropriate consultee, ultimately choosing a large, sophomore-level physics course that had four faculty and sixteen assistants as resource/teaching personnel. Design Group B negotiated an agreement to provide biweekly discussion meetings, and modules on know your audience, working with students in difficulty, a mid-term evaluation of performance, a videotape of classroom performance, a course evaluation, and a course diary of tips to pass on to succeeding generations of teaching assistants. Activities over the fall are summed up in Figure 2.

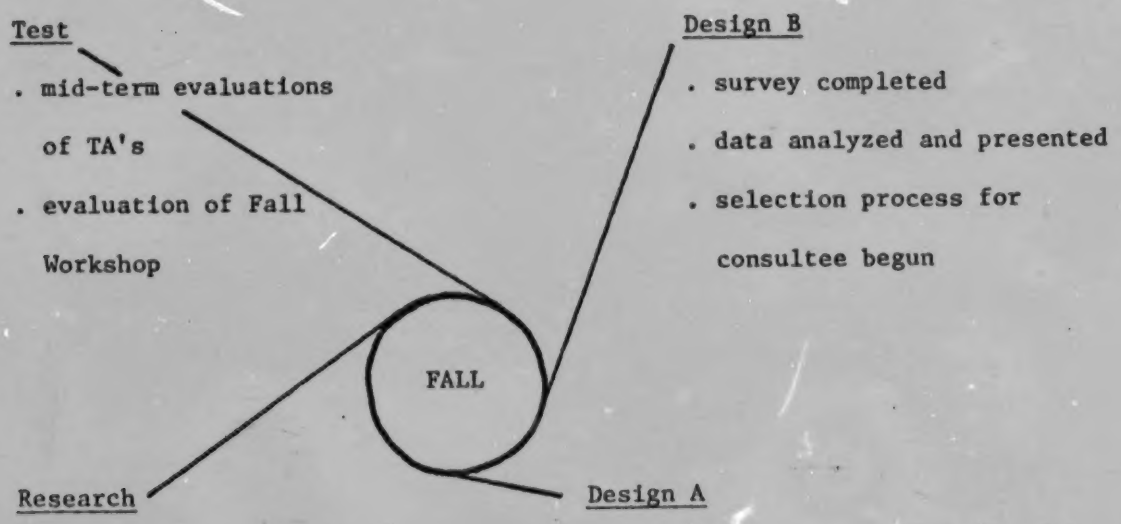

Figure 2

In the spring, Design B group became active in the consulting work with physics, and successfully completed the promised activities. Subsequent evaluation showed that this consulting received uniform high praise from both assistants and professors. During this period, Design A group continued to function, using video-taping procedures with extremely effective teaching assistants to produce new modules on leading discussion, questioning, classroom mechanics, and problem solving. These were designed for use by individual teaching assistants. but it quickly became apparent that they were also invaluable for use in a consulting mode. Had they been available, they could have been used very effectively by Design B group. Our work for the spring is

represented by Figure 3.

Design A

. work begun on additional modules:
  teaching mechanics
  questioning
  problem solving

Production

. media presentation
. work begun on additional modules

Design B

. physics selected as consultee
. consulting contract finalized
. modules utilized
  know your audience
  working with students in difficulty
  mid-term evaluation of TA's
  video-taping classroom techniques
  course evaluation
  bi-weekly meetings

Figure 3

In the early stages of the second summer, we evaluated the year's work and began a new design cycle. This design welds together Designs A and B by utilizing an introductory scheme to help users decide whether the best mode of operation in their situation is direct assistance or consulting. Once this decision is reached, the user is advised in a second module of the best way to proceed. Thereafter, additional modules are selected on the basis of guidelines contained in module 2, with all of these additional modules being specific in nature, many of them covering basic teaching skills.

What did we learn from our work over the year? The following points seem to stand out:

1. Having a diverse group was a definite plus, as this gave us flexibility and resulted in ferment of ideas.
2. Relatively uniformed brainstorming in a freewheeling fashion took too much time in the beginning: we would have been much more efficient in our work if we had begun with the institutional survey.
3. We failed to initiate contacts with "users" early. Too frequently we operated in a vacuum, developing ideas to completion that were not acceptable to the faculty supervisors of the teaching assistants in a particular class.
4. Implementation is a more difficult hurdle than ideation. The problem was not the difficulty of developing helpful ideas, but in implementing them within the system. We did not allocate time proportional to the difficulties involved.
5. Developing two different approaches to the problem was a good tack, as opposed to attempting consensus on one approach. In retrospect, the two approaches turned out to be not that different; one simple precedes the other in time.

RECOMMENDATIONS TO SOMEONE JUST BEGINNING

1. Begin with a data base--it will be specific to your institution, make you knowledgeable, offer a starting point for further discussions, give you a population from which to form a group.
2. Make any group that will initiate action diverse. Ferment is good, skills of individuals often will compliment each other or compensate for weaknesses.
3. Working with teaching assistants is a subtle process of change. A good model for understanding that process is available in "Components of an Effective Faculty Development Program" by Bergquist and Phillips*. Recognize that action will include the personal dimension for faculty and teaching assistants, the instructional process for these persons, and could well impact the departmental organization. Consequently, identify and enlist potential consumers in the process as early as possible.
4. Develop your program in response to the consumer. It appears to be an error to develop in advance, then put the package "up for sale". Develop a basic package of modules that have flexibility, that can be used by different persons in different settings.

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*William H. Bergquist and Steven R. Phillips, "Components of an Effective Faculty Development Program", Journal of Higher Education, Vol. XLVI, No. 2, March/April, 1975, pp 177-211.

5. Determine who is interested in helping teaching assistants and why. Is there support from faculty, or is it a directive from administration? Is it recognized that extensive commitment is required for any degree of success, or is it assumed that a patch-up job will suffice? Be prepared for resistance. Change is often viewed as a threat.
6. In the beginning, make it clear that you cannot promise a quantitative evaluation of your impact. Change is a subtle process, hard to document. While you can possibly document an increase in the perceived effectiveness of teaching assistant's performance in class by students, the more important factors may be in personal changes by faculty and altered structural changes in the department.

What else might you do? That is up to you. Keep in mind as your first principle that every situation is different, every institution is unique. Things that have been successful at Cornell, may be a disaster for you. Hopefully our experience in getting started will help you avoid the basic pitfalls, but you will have to take it from there. At least you have one significant advantage over us--you don't have to start from scratch.

EXPERIENCE OF USERS

Following are some of the responses from those who have used the materials and strategies developed through the auspices of the T.A. Project. While not definitive in themselves they do provide some notion as to the value of the project for the participants, and are offered as a sampling of reactions upon the implementation of various materials and strategies developed by the project team.

Video Tape Modules

The fact that the video-tape represented a packaged module ready for use was received favorably by several departments (Chemistry, Math, Physics). "The format is one of the most effective I've seen" was a common comment.

Teaching assistants from the Department of Chemistry asked for more such modules dealing both with questioning and problem solving.

The individual in charge of teaching assistants for the Physics Department stressed the potential usefulness of a video-tape module designed to teach creative problem solving.

Various professors from Mechanical, Electrical, and Aerospace Engineering voiced unanimous desire for a problem solving module of the kind we proposed and developed.

The head of the Department of Mathematics said the questioning module was the "best thing I've seen with respect to helping TA's".

The staff from the Educational Center at Syracuse University commented on the "reality and practicality of the video-tape approach".

Consultant Process

One of the faculty participants in the efforts designed to improve course effectiveness through meetings with faculty and teaching assistants said, "This is the first course in which I have been involved where people didn't head for the door when someone began talking about course improvements".

The Chairman of the Department of Physics indicated that student and faculty ratings of teaching assistants in the course were consistently higher than any he could remember.

Midterm Evaluation

Students commented on the effectiveness of providing input while there was still time during the term for a teaching assistant to respond.

A REVIEW OF SELECTED LITERATURE

Introduction:

Much has been written in the last decade on the training and evaluation of teaching assistants and the improvement of their teaching ability. Numerous Universities have initiated improvement programs, for various reasons, from undergraduate student dissatisfaction with their teaching assistants to the desire to train future professors more effectively. Very little has been reported about programs in engineering or the physical sciences.

The training programs that have been described are extremely varied. Workshops, seminars, regular courses, lectures, internships, micro-teaching, peer evaluation and other modes have been tried, and most have had considerable success. However the authors on one paper[1] suggested that the "Hawthorne effect" may be the cause of their success. (that we try harder when we have a new function or new idea, and that the increased effort is responsible for most of the success.) This view is overly critical, and does not account for the many failures which also have occurred. However, the inverse Hawthorne effect tends to assure failure.

Successful programs have several common conditions. First, the projects have official sanction from top administrators such as department chairmen and deans. Unsupported graduate students are unable to do it alone. Second, each program demands considerable input in time, energy, effective planning, and communication with people. Third, some official policy that good teaching is recognized and rewarded is required.

Are Teaching Assistants Teachers?

The article by W. J. Lnenicka[2] proposes a basic dilemna. Teaching assistants are asked to perform as teachers, although they often are not trained as teachers, nor instructed how to teach. Even though academically qualified to teach, based on prior completion of the course content, most teaching assistants are woefully unprepared pedagogically to confront their classes. The usual teaching assistant is inexperienced, unrehearsed and somewhat disinterested in the job, which is incidental to his graduate degree requirements, the prime reason for his attendance at the University. Lnenicka insists that the problem is primarily an administrative one; that Department Chairmen pay little attention to the practice of good teaching by full-time faculty, and avoid supervising the teaching activities of teaching assistants.

Lnenicka concludes that the situation is not hopeless; that "a carefully prepared training program could do much even during one academic year to produce competence out of incompetence, to produce a trained teacher instead of an untrained hack...".

Various authors have questioned whether teaching assistants are apprentice professors or faculty slaves. Probably neither characterization is correct. Although an appreciable number of teaching assistants may aspire to a professorial appointment, many are not so inclined. Neither, today, are graduate students afraid to discuss their teaching assignments with their faculty. However, the question correctly indicates the possible problems in the relationship between the teaching assistant and his professor. One faculty member may assume that the teaching assistant is his slave, required to follow his instructions without question. Another

faculty member may genuinely feel that the teaching assistant should have full freedom to teach the course, even though he has never taught before. Teaching assistants should be teachers, and most often are competent in the subject matter of the course. However they may be completely unable to "put it across".

Teaching assistants, are involved with instruction of undergraduates in many of the large beginning courses in most universities. Most often their experiences as teaching assistants provide their only opportunity to learn to teach. Stockdale and Wochok[3] point out that most institutions hire teaching assistants to facilitate instruction of large groups of undergraduates, in return for financial support for their graduate studies. Training of future college teachers is not considered the primary purpose of the teaching assistantship. These authors point out that supervision and training of teaching assistants in a sample of 44 of the 50 largest graduate schools varied from nothing to a few formal training programs, primarily in the larger departments. The usual type of training program reported consists of an initial orientation and instruction meeting followed by periodic meetings during the term, usually to clarify administrative problems. Only 40 per cent of the respondents reported that the faculty supervisor visited a teaching assistant in class one or more times during the term.

In those schools which had training programs for teaching assistants, four common trends were reported.[3] The first is concrete instructional information; explaining procedures which have worked best with students. The second deals with planning of class sessions, sections, and sometimes the entire course content. The third, listed by one-third of the respondents, involved the structuring of

examinations, and the philosophies of grading. The fourth involved the philosophy of higher education or the specific philosophy of the course, listed by less than one quarter.

Specific Program

Various programs are described in the Stockdale and Wochok paper, the most elaborate being at the University of Michigan. The objectives of the Michigan program were to develop a plan for training college teachers, enhancing the image and increasing the responsibility of teaching assistants, and the development of reliable evaluation of the effectiveness of the program. Their procedure was a stepped one. Beginning teaching assistants have direct supervision and frequent opportunity to watch experienced teachers. Teaching assistants having one or two years of experience move up to their own course, still with guidance from experienced teachers. Finally, teaching assistants at Michigan become Graduate Supervisors, taking over the guidance of less experienced teachers. Variations of the plan are used in Botany, History, Philosophy and Physics using videotaping of assistants, micro-teaching, practice teaching, etc. The evaluation of the effectiveness of the Michigan program is not yet available.

Pascal[4] describes various techniques for "Imparting Teaching Skills to Graduate Students" at McGill University. The techniques are offered in a "course" and include student motivation, seminar and discussion group skills, lecturing skills, evaluation, and instructional design. No evaluation of the program is offered.

Buckenmyer[5] describes a program at Dayton School of Business designed to prepare graduate students to teach. The program began

with faculty concern over the teaching effectiveness of graduate students, and generated a large commitment of time at the beginning of the fall semester. The teaching seminar is a full-time two-week program between the faculty and the teaching assistants in a relaxed atmosphere in the faculty lounge. The later was specifically mentioned as an important factor to enhance cooperation. The author candidly admits that the seminar has done little to change attitude of faculty, but that the graduate student teachers have definitely improved. He implies that faculty attitude is the serious problem.

Muhlestein and DeFacio[1], at the University of Missouri, describe a required course for graduate teaching assistants on improving the quality of instruction in the undergraduate laboratories. A feature of the course was the treatment of teaching assistants as professionals rather than slaves. Evaluation shows the course to be successful, although the authors point to the "Hawthorne effect" described earlier.

Braddock[6] advocated reversing the "Peter Principle" to help inexperienced graduate assistants to teach. He suggests heavy involvement of inexperienced and experienced colleagues in a teaching enhancement program. Seminars designed to accomplish numerous objectives were given at the University of Iowa, involving all levels of teachers, with the primary instruction by active teachers. The seminars generated much interaction and were praised by nearly all participants.

Authors from the University of Idaho[7] describe how they prepare teaching assistants to teach. The authors describe how teaching assistants seek ways to develop their teaching skills on their own, and if ineffectual, lack of faculty supervision is involved. At

Idaho the teaching assistants sought faculty help with the result that a microteaching laboratory was developed. Through micro-teaching and video taping their performances, apprentice teachers are able to develop their instructional skills. This is the only report of a teaching enhancement effort beginning through the demand by the teaching assistants.

A study[8] at the University of Minnesota shows that a systematic teacher training program for teaching assistants with student evaluations, videotaped presentations, and instructional seminars can have significant influence on student and instructor performance in the classroom

Faculty Attitudes

Mangano[9] points out that a program for improving teaching on a campus should begin with appraisal of the faculty attitudes toward improvement. Programs for improving teaching are rare for faculty or for teaching assistants. Mangano states that "faculty attitudes represent one of the greatest barriers to change".

Cleland,[10] in describing attempts at formal in-service education at Kalamazoo College, notes that "most of the roadblocks are attitudes". He concludes that "since change in higher education could best be achieved by aiming at the attitudes of the faculty, it seems a logical place to begin an instructional improvement program".

It seems evident that faculty attitudes toward teaching would have a strong influence on teaching assistants. This has been shown at Cornell.

We concluded that improvement of the teaching effectiveness of the teaching assistant depends upon faculty attitudes, and cooperation, peer pressures from other teaching assistants, and the development of skills and confidence to meet the normal and unusual classroom problems.

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DEVELOPMENT AND USE OF A TEACHING ASSISTANT SURVEY

The effective development and utilization of a survey proceeds through several steps. The different stages, however, center upon a single consideration: How will the survey help those involved better approach the teaching assistant situation and build a foundation and rationale for appropriate interventions?

Initial Phase Development

A survey instrument provides for the discovery of the parameters describing the functioning of the ideal teaching assistant as well as an indication of specific teaching assistant performance. Since teaching assistants are utilized in a variety of ways there must be considerable lattitude in the questionnaire.

The ultimate purpose is to help both teaching assistants and faculty define and understand the teaching assistant's role. Surprisingly, it became apparent that such definition while important rarely occurs by itself. The questionnaire becomes a vehicle for communication between faculty and teaching assistants with respect to a common understanding of the teaching assistant's responsibility in the particular course.

As a means of accomplishing this a number of common sense descriptive itemsare hypothesized. The results are then distributed to the faculty, teaching assistants and students with instructions to change, modify and add to the items in any way. Interviews are subsequently held with the participants asking them to respond in terms of the meaning of the various items and any modifications.

The result is a "pool" of items with some probability of a common or shared meaning among faculty, teaching assistants, and

students.

A new form of the questionnaire must then be distributed to faculty and teaching assistants asking for their item analysis comments in terms of ambiguity, meaning, etc. When these two steps are bypassed, and the final questionnaire prepared without direct consultation with faculty, teaching assistants, and students, the final data is not useful.

This enables a final version to be prepared and distributed to a large sample of faculty teaching assistants and students. The results can be utilized in some of the following ways.

Data Utilization

It is useful to analyze the data in terms of three categories.

a. Where faculty, teaching assistants and students agree about the importance of an item, and agree that the teaching assistants need more skill.

b. Where the three groups agree concerning the importance of the item, and that the skill is commensurate with the importance.

c. Where there was disagreement by students, who felt the teaching assistants needed more skill in the particular areas involved.

Meetings with selected faculty should be held to familiarize them with survey results, and to provide them with the basis for a meaningful approach to enhancing teaching assistant effectiveness in their particular courses.

To accomplish the latter, discussion of those areas of the teaching function in which there is substantial agreement by

everyone that teaching assistants possessed less skill than that indicated by the importance is the best beginning point.

After a brief presentation of total results, the faculty are asked to rank the items in terms of do-ability. This helps identify those areas in which they may have effective control or influence. (For example, certain things such as teaching assistant selection procedures may be beyond control. Discussion of factors beyond the control of the participants is ineffectual and frustrating.)

A valuable aid for implementing this survey proved to be a neutral party. A third party (someone other than course staff) can be extremely helpful in constructing, administering and presenting results of the survey. This "consultant" is also useful in the sense that poor communication between faculty, students and teaching assistants often appears at the core of a number of the items rated as important and needing improvements. (See the questionnaire and analysis.)

By enabling faculty, teaching assistants and students to define their own situation a communication basis is established. This can only be accomplished if it takes place with the participation and involvement of the key individuals.

The questionnaire becomes a vehicle whereby those involved define and identify the various aspects of a teaching assistant's function. Assumptions being made by the various people connected with the course become evident. It is not unusual for assumptions to form the basis for a number of actions, sometimes appropriately, sometimes not.

By clarifying the <u>actual</u> situation and identifying realistic options the faculty gain control over their course. Since their

participation is essential this provides a basis for real improvement in the course.

Interestingly, the above procedure is more effective than simply teaching the teaching assistants a certain number of predetermined "skills".

One form of a survey and the resultant data analysis follows. It is to be used as a model but not a substitute for the process described.

Following is a list of functions or skills a T.A. may be required to do or to possess. Please note each item and circle the appropriate number with respect to:

1. Its importance for the ideal functioning of a T.A.
2. The degree to which it is usually possessed by new T.A.'s.

In responding please use your present understanding (whether or not it is based upon existing experience).

	Importance for T.A.'s job (1=least important; 7=most)	Extent to which new T.A.'s possess the skill or attitude (1=hardly ever; 7= almost always)
Planning for the first day of classes	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Constructing exams, quizzes	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Grading homework	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Grading exams, quizzes	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Maintaining the respect of class	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Helping students in difficulty	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Perceiving where students "are"--bored, confused, attentive, etc.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Techniques of leading a class via:		
a. lecturing	1 2 3 4 5 6 7	1 2 3 4 5 6 7
b. leading a discussion	1 2 3 4 5 6 7	1 2 3 4 5 6 7
c. problem solving	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Handling course complaints	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Developing course structure	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Blackboard presentation and/or use of visual aids	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Overall class planning	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Being flexible and meeting unexpected situations	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Inviting and answering questions	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Defining and communicating class objectives	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Relating personally to students	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Conducting review sessions	1 2 3 4 5 6 7	1 2 3 4 5 6 7

	Importance for T.A.'s job (1=least important;7=most)	Extent to which new T.A.'s possess the skill or attitude (1=hardly ever; 7=almost always)
Receiving feedback		
a. from students to T.A.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
b. from faculty to T.A.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
c. from T.A. to T.A.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Giving feedback		
a. from T.A. to students	1 2 3 4 5 6 7	1 2 3 4 5 6 7
b. from T.A. to faculty	1 2 3 4 5 6 7	1 2 3 4 5 6 7
c. from T.A. to T.A.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Demonstration of experiments	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Teaching laboratory procedures	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Helping students interpret experimental results	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Relating personally to faculty	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Positive attitude (on T.A.'s part) to course material	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Ability to motivate students	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Understanding what the T.A. is expected to do	1 2 3 4 5 6 7	1 2 3 4 5 6 7
T.A.'s motivation to do a good job	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Teaching concepts to students	1 2 3 4 5 6 7	1 2 3 4 5 6 7

If a program to enhance T.A. effectiveness were developed would the following be helpful?

a. General lecture as to course requirements for the T.A.

b. Teaching the T.A. basic communication skills and/or audio visual methods

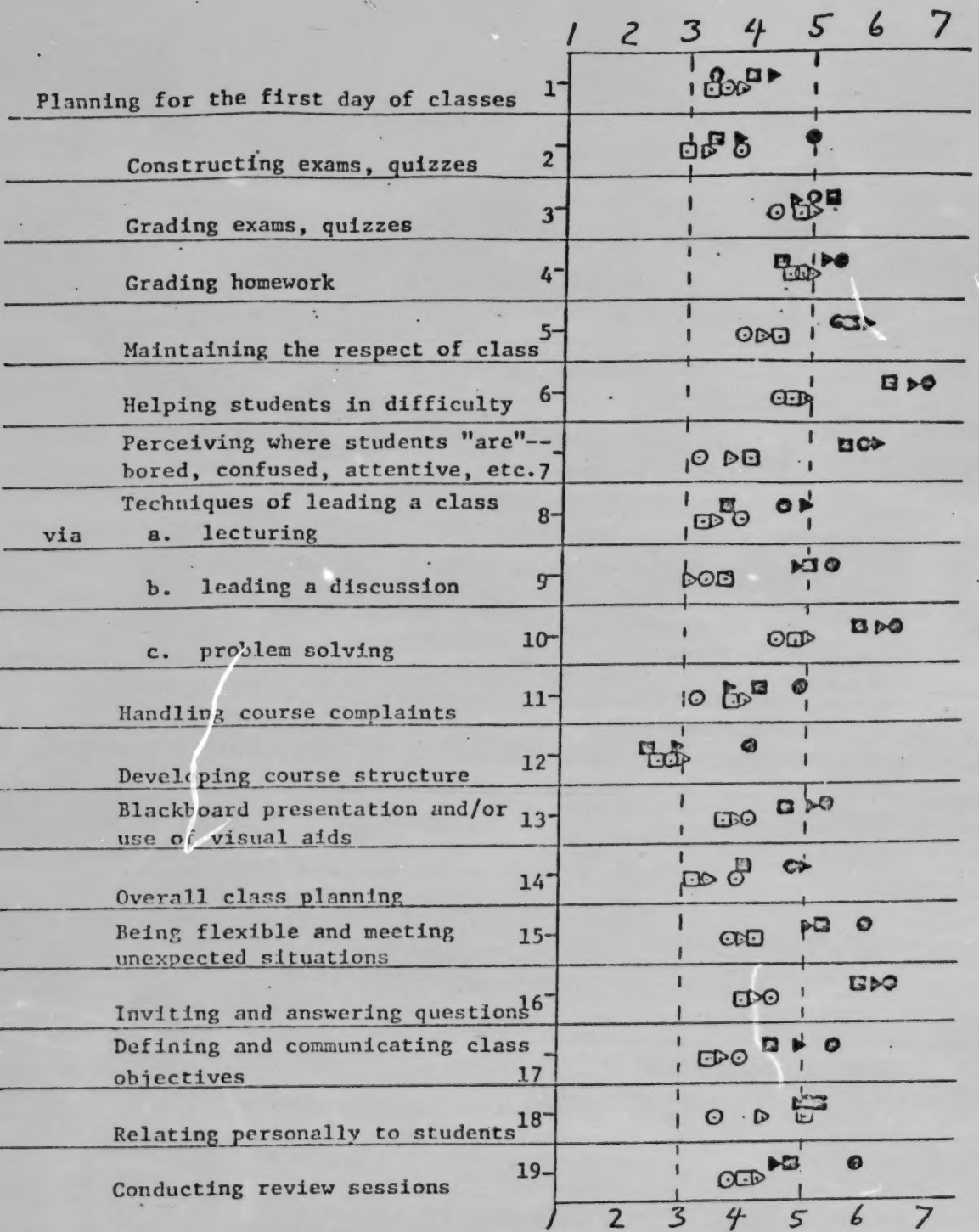
c. Video tape feedback for T.A.'s own evaluation of his teaching

d. Regular meeting of T.A.'s to discuss mutual problems, responsibilities, etc.

e. Other

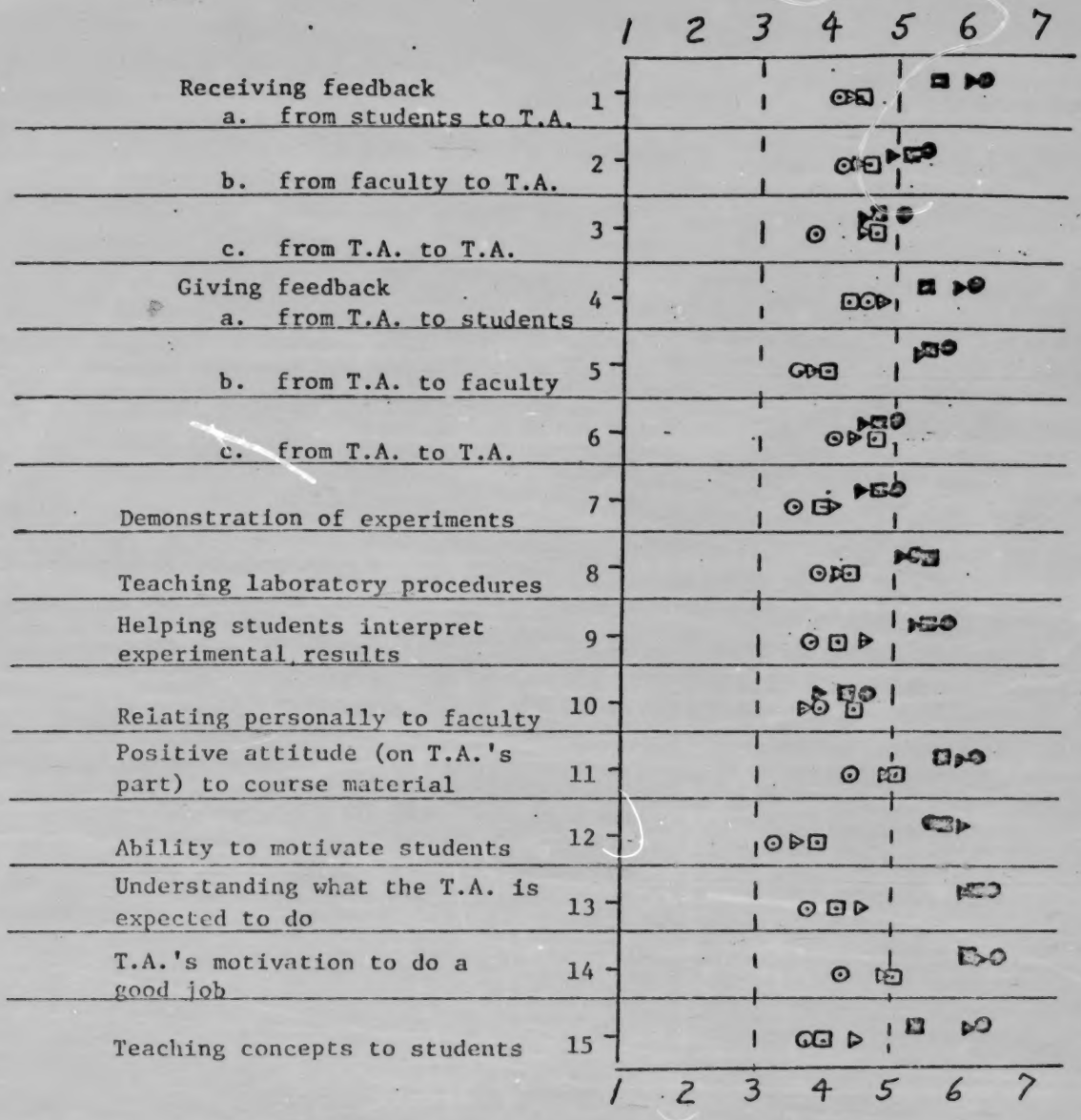
The things a T.A. needs to know in order to be effective will be learned best on his own through the actual experience of being a T.A.

agree 1 2 3 4 5 6 7 disagree


1 2 3 4 5 6 7
Planning for the first day of classes 1
Constructing exams, quizzes 2
Grading exams, quizzes 3
Grading homework 4
Maintaining the respect of class 5
Helping students in difficulty 6
Perceiving where students "are"--bored, confused, attentive, etc. 7
Techniques of leading a class
via a. lecturing 8
b. leading a discussion 9
c. problem solving 10
Handling course complaints 11
Developing course structure 12
Blackboard presentation and/or use of visual aids 13
Overall class planning 14
Being flexible and meeting unexpected situations 15
Inviting and answering questions 16
Defining and communicating class objectives 17
Relating personally to students 18
Conducting review sessions 19
1 2 3 4 5 6 7

KEY

- Faculty (importance)
- Faculty (extent possess the skill)
- T.A. (importance)
- T.A. (extent possess the skill)
- Student (importance)
- Student (extent possess the skill)



KEY

- Faculty (importance)
- Faculty (extent possess the skill
- T.A. (importance)
- T.A. (extent possess the skill)
- Student (importance)
- Student (extent possess the skill)

DEFINITION OF A MODULE

Each module is an experience-based organized learning unit for group study designed to increase teaching effectiveness in a single area. The objective of a module is to generate learning through an activity or series of activities with minimal cognitive input from the leader or from written material. Each module contains a brief overview, plus a guide explaining the objectives of the material, and a detailed outline of the procedure to be followed.

MODULE 1

THE MEDIA SHOW

Introduction:

To dramatize the differing viewpoints of teaching assistants and faculty concerning the needs of students, and the need to develop effective communication as a prerequisite to effective teaching, a media show was developed. This three-projector, audio tape parable is effective as the first presentation concerning the interpersonal conflicts which may block effective enhancement of teaching.

Objective:

An objective of the media show is the legitimization of "consultants", who have no direct responsibility for teaching the course, as advocates for the enhanced effectiveness of teaching, in a role that is not immediately threatening to either the faculty or the teaching assistants. An effective consultant can dissipate rapidly the adversary situation between faculty and teaching assistants which otherwise tends to develop.

Procedure:

1. Begin the media presentation without extensive introduction.
2. At the conclusion of the Parable presentation the group leader should ask typical members of the audience whether the concerns and problems of the various groups were presented accurately.

3. Following brief responses, the group should progress to defining the problem and working on solutions.

General Notes:

1. When the media presentation is shown to audiences of faculty and teaching assistants, the usual response is that the show does not present anything new. Responses have been variations on "we know all that". However, audiences who did not view the media show at the outset were prone to ignore the importance of interpersonal relationships and to become bogged down in discussion of their own views of how teaching assistants could be more effective, a topic which has been discussed for many years without notable improvement of teaching assistant effectiveness.

   If teaching effectiveness could be improved by fiat, it would have been accomplished long ago. The media show leads students, teaching assistants, and professors toward more understanding of the problem and the interpersonal actions that are necessary to its solution.

2. Do not assume that the media show will be the sole topic of the meeting with faculty and teaching assistants. It is an introduction to the problem. It is most effective when followed immediately by a meaningful discussion, in which faculty and teaching assistants describe their individual teaching philosophies through discussion of the show. A further discussion of the problem, but not of the

show, is vital. This can be accomplished by a verbal introduction to subsequent models.

MODULE 2

THE WORKSHOP

Introduction:

It is important that the faculty and their teaching assistants get to know each other and the educational consultants. Recognition of the workshop, as a joint effort of all participants to analyze potential problems and concerns and to plan procedures to be employed throughout the term is stresses.

Objective:

To develop rapport between faculty, teaching assistants, and staff consultants and to develop objectives of the Teaching Assistant Program through group participation.

Procedure:

The following procedures have been used successfully at Cornell.

1. Plan a three-hour meeting in a large room having movable furniture. Avoid a "classroom" appearance.
2. Have refreshments such as beer, soft drinks, chips, etc., available when participants arrive.
3. Have everyone prepare and wear a nametag, emphasizing first names. This assures some activity on the part of each participant.
4. Master of ceremonies will divide total group into small work group having students, faculty, and staff wherever possible.
5. M. C. will assign the following task to each group.

   Learn the name and some background material about each group member so that you will be able to introduce other members of the working group to the larger group.

6. M.C. will call on some persons to introduce others and tell a little about them. The purpose of this exercise is to emphasize equality and faculty involvement, to gain information about participants, and to reduce anxieties.
7. Media presentation to entire group (15 minutes), see Module 1. Ask for issues raised by the media presentation. List on newsprint.
8. M.C. will ask each small group to discuss their impressions of a T.A.'s responsibilities and to list their hopes and anxieties about their teaching responsibilities for the coming term.
9. A spokesman for each of the work groups should present the group information to the total session. The M.C. will list salient points on a blackboard or newsprint. Following presentation of lists, open discussion by entire group of issues raised.
   - issues that usually are raised include
     . teaching engineers or scientists - a special case
     . how does the teaching assistant perceive the needs of his audience
     . recognizing individuality in students
     . first day problems
     . how to prepare for an conduct recitations
     . how to respond to questions
10. Focus on one of the issues raised in 9, choosing an issue for which a module is available.

Evaluation:

It is important that the various presentations, beginning with the initial workshop be evaluated. A copy of the evaluation for the initial Cornell Teaching Assistant Workshop is included as Appendix A.

APPENDIX A

End-of-Workshop Questionnaire

Name _____

Department _____

Date _____

A. We are interested in learning which activities you would like to participate in this semester. Please indicate as follows:

Check column 1 if you are not interested in the activity.

Check column 2 if you are somewhat interested.

Check column 3 if you are very interested.

Check column 4 if you would like to plan or help carry out the activity.

	1	2	3	4
1.				
2.				
3a.				
3b.				
3c.				
4a.				
4b.				
4c.				
5.				
6.				
7.				
8.				
9.				
10.				

1. Written materials on teaching
2. Staff resource persons working with individual TA's or groups
3. Brief workshops on:
   a. Organization of discussion and asking questions
   b. teaching students problem solving
   c. activities to enhance effectiveness of course staff
4. Evaluation of teaching including
   a. student evaluations
   b. video-taping
   c. mid-term workshop to discuss meaning of evaluations
5. Workshop on production and use of media
6. Bi-monthly newsletter
7. Bi-monthly seminars
8. Future get-togethers of this group to _____
9. Evaluation of T.A. Project
10. Other _____

B. There were four segments of the workshop:

(1) Getting acquainted (Tuesday night)

(2) Dynamics of Teaching (Wednesday A.M.)

(3) Instructional Planning (Wednesday Noon)

(4) First Day and Personalization of Teaching (Wednesday P.M.)

The first four columns below refer to these four segments. The fifth column refers to the workshop as a whole.

Please check each column for which the following descriptions are true for you.

	1	2	3	4	5
1. It was well - organized.					
2. It was interesting.					
3. It was too long.					
4. It was too short.					
5. It was fun.					
6. I learned new skills.					
7. I'll use skills I learned in teaching.					
8. It is worth repeating for other T.A.'s.					
9. It was useless.					
10. I didn't attend.					

C. Please complete the following sentence

1. If I were planning this workshop, I would have left out
   1. broken up the Wednesday session
   2. teaching experience -- sounds good, but didn't add to my knowledge. Time too limited. Observation of actual teaching would be better.
   3. ----
   4. ----
   5. ----
   6. Some of the steps leading to concrete proposals. For instance the exercise about the horses.
   7. Instructional planning.
   8. ----
   9. ----
   10. Objective planning.
   11. ----
2. If I were planning this workshop, I would have included these other activities.
   1. ----
   2. More lists of suggestions and discussion of particular problems (how to foster cooperation, etc.)
   3. Maybe an initial meeting of interest in general to all T.A.'s then (perhaps after further meetings, such as occurred this time) specialization to special interest groups of T.A.'s, e.g. lab instructors, recitation leaders.
   4. ----
   5. ----
   6. ----
   7. Possibly giving talks before 1/2 the group, instead of one other person (with one observer) to get a feeling of facing a larger number of people.
   8. There seemed to be no differentiation between teaching in lectures, where one has control over goals, etc., and recitations where the T.A. must follow what the professor dictates.
   9. group dynamics; model teaching by a "professional".
   10. more practical material; handouts, lectures, films, etc.
   11. ----
3. The best thing about this workshop was
   1. meeting people
   2. discussion of "objectives"
   3. the exchange of ideas about teaching, but <u>specifically</u>, I thought the discussions of <u>specific</u> successful teaching methods was most interesting
   4. dynamics of teaching
   5. free lunch -- very fine people leading the workshop!
   6. To become aware of all the possible problems arising; to learn some concrete things to do
   7. Getting to know other T.A.'s, what they felt, what problems they have faced in teaching before, etc.

8. Opportunity to get lots of different outlooks, but still on related areas (i.e., not languages, humanities, etc.)
9. exposure to different viewpoints and personalities
10. contact with other T.A.'s

4. The worst thing about this workshop was
1. Wednesday was too long
2. too many questions and problems, too few suggested solutions; also, too much concern about evaluating the workshop in process
3. bad beer on Tuesday night
4. ----
5. ----
6. some exercises were too long
7. length. The continuous activity was tiring. It would be better broken into parts.
8. Some interesting (small group) discussions got interrupted
9. length
10. not enough practical material
11. ----

D. Has the workshop changed your feelings about being a T.A.?

If so, in what respects?
1. gained some confidence, started thinking about my responsibilities as a T.A.
2. somewhat discouraged: other T.A.'s feel powerless to change their traditional role as problem-solver and question-answerer. Somewhat encouraged: I may be able to pick up some good suggestions about specific situations.
3. made me a little more apprehensive (but that's the price of increased awareness).
4. ----
5. no.

MODULE 3

ENHANCING THE WORKING EFFECTIVENESS

OF A COURSE STAFF

Introduction:

Quite commonly the faculty member in charge of a course has little contact with the teaching assistants until the start of the course is imminent; sometimes not until the course actually has begun. This situation creates additional problems and anxieties for both the senior instructor and the assistants. Most often, little attention is given to the faculty-teaching assistant relationships. The faculty member expects full cooperation, but offers little instruction about the problems that he forsees during the term or how he expects to handle them. In turn, the teaching assistants offer little assistance to the faculty member in understanding the students.

Objectives:

This module is to foster respect, good will, and effective communication between the faculty and the teaching assistants. It has been found that this module can be presented most effectively by a third party acting as moderator.

Procedure:

1. Introduction and explanation
   a. Present a complete agenda of the module
   b. Give the goals of the module
   c. Explain the role of the staff consultant
   d. Provide an opportunity for questions
      Note: It is important that the participants know what will be happening so that their apprehensions are reduced. The agenda should be followed precisely. There should be no surprises.

2. Getting Acquainted Exercise

   a. The exercise will facilitate the involvement of the participants by helping them become comfortable talking with each other about themselves and their feelings. Also it will introduce them to the need for good listening skills.

   b. Specifics -

      1. Triads are formed. The only criterion for grouping is not to know the other members of the triad.
      2. Participants in each group name themselves A, B, C.
      3. Participant A takes three minutes to tell participants B and C as much about himself as he feels comfortable in doing. Participant B repeats this process. Participant C repeats this process.
      4. Together, participants B and C take two minutes to tell participant A what they heard him say and what they infer from what he has said and left unsaid. Participants C and A repeat this process. Participants A and B repeat this process.
      5. Discuss any differences or misunderstanding that were uncovered.

3. The "Other Meeting" Exercise. An exercise to introduce the tool of group process observation.

   a. To begin learning group skills, participants must first be able to observe some of the dynamics of group behavior. This exercise, while focussing on issues of faculty - teaching assistant - student interactions, will introduce the tool of group process observation.

b. Specifics -

1. Groups of 9 to 15 are formed. Criterion for formation is to know as few of the other group members as possible.
2. Each group designates one third of its members as "group watchers".
3. The group watchers gather with the facilitator and are given "group observation help sheets". These sheets are explained and questions are answered. The group watchers from each group divide up the remaining members of their group so that each watcher has two people to observe.
4. While the group watchers are meeting, all other group members individually read and answer five "agree - disagree" statements on issues of faculty - teaching assistant - student interactions.
5. The groups reassemble and arrange themselves so that the group watchers can observe the discussion.
6. The members of the group have twenty minutes to reach a consensus on the answers to the five questions. They should avoid vote-taking as a means of reaching this goal.
7. The discussion ends and the group watchers have five minutes to collect their thoughts.
8. The group watchers take fifteen minutes to tell their group what they saw.
9. The group draws up a list of five things that helped the group and five things that hindered the group. The group picks one of its group watchers to present this list to all the groups.

10. Each group presents its list. A grand list is made.

11. Discussion.

4. Skills Required of Teaching Assistants

A survey of teaching assistants and faculty is needed to determine the viewpoint of each concerning necessary teaching skills. For this the survey instrument shown in Appendix A is used.

MODULE 4

KNOW YOUR AUDIENCE

Introduction:

In a University setting, many things contribute to the particular population of students forming the audience within a given course. In some cases, courses are populated by students from one particular unit or discipline, such as a physics course for engineers. Sometimes, courses are "required", and motivation for learning may not be much in evidence, as when liberal arts students take courses to meet a distribution requirement. There are numerous other factors that affect the make-up of a course audience, and these are important for instructors to know, because they directly affect performance, often causing inexperienced teaching assistants to become needlessly discouraged and to get down on themselves. It is important therefore to have teaching assistants aware of the needs of the audience, and to conduct class accordingly.

Purpose:

The purpose of the module is to have teaching assistants become aware of the assumptions they make and the impact this has on their effectiveness as instructors.

Objectives:

1. To have teaching assistants recognize the fact that they make many assumptions about the audience before they begin to teach.
2. To have a teaching assistants explicate the assumptions they are making about the present audience taking the course.
3. To have teaching assistants check their perceptions against

those of other assistants in the course.

4. To have teaching assistants generate ways for establishing the characteristics of a given audience.
5. To have teaching assistants discuss the implications which these perceptions have for instruction--both method and content.
6. To have teaching assistants develop suitable methods for handling conflicts produced by incompatible assumptions.
7. To have teaching assistants discuss the impact which incorrect assumptions have on their performance, through the creation of negative feedback.

Procedure:

General Preparations:

1. Plan an informal meeting, with adequate work space for students to write down various points. Either sheets of newsprint or blackboard space works well.
2. The meeting should be early in the term. If experienced teaching assistants who have taught the course before are available it is possible to have the meeting before the term begins, using these persons as resources or instructors.
3. The leader should be familiar with the exercises described below, and have first-hand knowledge of teaching, particularly the teaching of the course involved, or the leader should be closely associated with students populating the particular course.

4. The leader should be armed with ideas on each of the discussion topics, to generate discussion and to provide direction when needed.
5. Generally speaking, the main points of the meeting can be realized in an hour to an hour and fifteen minutes.

Suggestion Discussion Points and Exercises:

1. The opening remarks should be prepared by the leader, demonstrating from personal experience the fact that the teacher frequently makes assumptions about students in a given class and illustrating the kinds of assumptions that can be made. For example, the leader might say: "Today we will consider the assumptions we make, as teachers, about the class we teach, and the impact this has on our effectiveness. I will begin by sharing some examples from my experience, so you get an idea of what we are talking about. My first experience as a teaching assistant was in history, actually a Survey of Western Civilization, and I was assigned an eight o'clock section, which was for the purpose of discussion. This turned out to be a disaster for me, because three quarters of the class sat in the back few rows and slept. After about the fourth week, I had run out of ideas to stimulate these students: I was convinced I had missed my calling, I dreaded the class, and abhorred the dullards who called themselves students, in part because they were completely disinterested in what I had to say, which was, after all, quite important to me.

   I finally cornered an experienced teaching assistant to get his ideas. He suggested that I check to determine which college

these students were enrolled in. It was his guess that most of the class were engineers, that they were in my section because it was the only time available in their schedule, that they took the course because they were required to, and that they spend most of the night before working 'till two in the morning on their computer programs."

"I checked and he was right. I subsequently negotiated a different time for the class to meet, I lowered my expectations about their performance, I pitched discussion points to an engineering point of view--and I quickly became much more successful."

2. Following an introduction such as the above, ask each teaching assistant to take a sheet of newsprint and write the assumptions he makes about his current class. A few hints may help. Some possibilities are: what college are your students in, why are they taking your course, what other course is more important to them, what kind of a background do they have, do most of their examinations come at the same time in the term, are most of them freshmen, sophomores, juniors, seniors, is this course a required course, are students intuitively interested in the subject matter, etc.
3. After the teaching assistants have spent time on this, have them get together in pairs to discuss their assumptions. What assumptions are shared? Can they agree on a common set of assumptions? Then have the group get together to list high frequency items, and discuss whether these have any basis in fact, or whether they are, in fact, simply commonly held assumptions.

4. When 3 is finished, have the group discuss plans for accurately determining characteristics of a class population. Is a questionnaire appropriate? How long should it be? What items should be included? Should this be incorporated as an activity for all assistants in this course?
5. What implications do the agreed-on assumptions have for teaching, in terms of content or methodology. Is the course germane to the interests of the audience? How could it be made so? What kinds of things might be done to improve this aspect of the course? What experiences have teaching assistants had in this area?
6. Clearly, inaccurate assumptions can block the teaching process. Generally teachers know when the process is not going well? How can they determine what the block is? If the block is an assumption, how can conflict be avoided? Even if the assumption cannot be changed?
7. Do students make incorrect assumptions about teaching assistants? Can the problem for assistants be better understood from this light? What are some common assumptions about teaching assistants? Do these block the learning process as well?

Conclusions:

The meeting may be concluded by having an experienced person comment on the topics raised, and the assumptions described. Often, more subtle, but equally important assumptions will be visible to such persons, and sharing these will bring greater awareness of the part of teaching assistants.

MODULE 5

PLANNING BY OBJECTIVES

Introduction:

Behavioral objectives are statements which describe what the student will be able to do at the end of instruction. Objectives that are not stated in behavioral (or performance) terms tend to be fuzzy to both the teacher and the student, and may lend themselves to frustrating misinterpretation. The abstract, non-measurable qualities of nonbehavioral objectives (understanding, appreciating, knowing) are important in terms of overall course design and may be a starting point for writing behavioral objectives, but generally abstract qualities are not helpful in planning effective instruction or in communicating to the student what is expected of him. Behavioral objectives are important tools for planning, communicating, and evaluating instruction.

To be effective, behavioral objectives must contain three elements:

1. The behavior the student will be asked to perform. These are verbs of action--sketching, identifying, listing, solving.
2. The conditions under which the student will be asked to perform. This would include expected procedures, time limits, or other restrictions.
3. The criteria of acceptable performance, and how the performance will be measured.

Objective:

The participant will be able to distinguish between behavioral and nonbehavioral objectives by writing nonbehavioral objectives in behavioral terms and will write behavioral objectives for his own course. The teaching assistant will identify the effectiveness of teaching with behavioral objectives by observing and discussing student and teacher behavior.

Procedure:

1. Compare the following nonbehavioral and behavioral objectives for the necessary elements of 1. behavior, 2. conditions and 3. criteria.

Nonbehavioral	Behavioral
A. The student will learn linear equations.	A. The student must be able to correctly solve at least seven simple linear equations within a period of thirty minutes
B. The student will know the human skeleton.	B. Given a human skeleton, the student must be able to correctly identify by labeling at least 40 of the following bones; there will be no penalty for guessing.
C. The student will understand how to operate the XX-1 radar system.	C. Given a properly operating XX-1 radar system and a standard kit of tools, the learner must be able to adjust the range marker of the PPI to acceptable roundness within a period of 45 seconds. Acceptable roundness is defined as a deviation of one-eighth inch or less from a standard template.

With each of the behavioral objectives, the teacher knows precisely what he must accomplish in the lesson. At the same time it is clear to the student what he is to learn and how that learning will be measured. The nonbehavioral objectives in each case, though accurate in terms of a general goal, are so vague as to allow great variances in teaching and actual learning outcomes while offering no guide for evaluation.

When precise objectives are used in a course taught by more than one person, conflicts and confusion may arise if the objectives are not clearly understood by all. Ideally, after preliminary goals have been determined, behavioral objectives should be established for an entire course and by all members of the teaching staff. The teaching assistant who wishes to plan by behavioral objectives should be certain of his understanding of the general goals of the course so that his behavioral objectives are in concert with the intentions of the Professor.

2. Show video tapes of two ten-minute lessons given by a teaching assistant. The first lesson was prepared and taught without prepared behavioral objectives; the second was planned and taught with the guidance of prepared behavioral objectives. Conduct group discussion of the following:
   A. differences in the general teaching style or specific techniques between the two lessons
   B. Differences in format or procedure and their appropriateness for accomplishing the objectives
   C. Differences in the students' behavior during the lesson--attitude, interest, attention
   D. Differences in the kind or extent of learning that took place
3. Divide total group into pairs. Each group will write behavioral objectives for one lesson in the area of competence of the group and will then design a lesson presentation based on the behavioral objectives
4. The work will be presented and critiqued, working in small group of 6-8 persons.

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MODULE 6

INITIATING CONSULTATION WITH FACULTY

Introduction:

The greatest impact on the training of teaching assistants is achieved when the project staff works directly with the faculty as well as with the teaching assistants in a specific course. The inclusion of the faculty members is very important because they set the tone of the instructional group. Faculty generally administer the course, assign teaching assistants to specific roles in the course, set the pace of the course, and so forth. Moreover, faculty have direct experience with the course in question and the sharing of this experience can play a major part in the teaching assistant training process. Trying to train teaching assistants without directly involving faculty is therefore very inefficient.

On the other hand, certain conditions are important for successful involvement of faculty. These conditions are demonstrated in this module.

Objective:

To develop cooperation between teaching faculty and the teaching enhancement project staff in a way that involves active participation by the faculty in a teaching enhancement project.

Procedure:

1. One or more teaching faculty members must be interested in participating in a project for teaching assistants and must agree to take part in workshops and meetings.
   a. This interest is best developed through preliminary contacts between faculty and project staff.

b. Faculty will discuss teaching assistant training in informal conversations, such as at lunch time, but tend to take a negative approach: "You won't be able to find enough things to discuss. I tried it and it didn't work. If you want to work with my course, I will be happy to offer you the chance."

c. The media show, Module 1, is excellent as an introductory and idea provoking presentation.

2. All faculty in a given course who control, or work closely with teaching assistants must agree to participate actively in the training process.

a. An effective method of enlisting the support of other faculty in a course is to ask the principal faculty member to discuss his agreement to participate with the other faculty and then to have him introduce the project staff to the other faculty.

b. "Active participation" needs to be detailed. For some faculty, this will mean agreeing to take part in all of the activities planned for the teaching assistants, such as videotaping of class sections, student evaluations, and staff meetings. By their participation in these activities, faculty legitimize the activities in the eyes of the teaching assistants. For other faculty only a more limited involvement will be possible. However, in either case, faculty and project staff should share goals and ideas for working with teaching assistants early in the planning stages for the project.

3. Define the roles of the faculty and the project staff in teaching assistants training.
   a. Faculty should delegate some of their authority for teaching assistant training to the project staff.
   b. The faculty should maintain their responsibility for the supervision of the teaching assistants in their daily teaching responsibilities.
4. Faculty and project staff should share goals and ideas for their course with teaching assistants early in the planning stages of the cooperative project.
   a. In early discussions with teaching assistants, the faculty should discuss the possible activities and requirements of the enhancement project. It is important to allow teaching assistants to express their concerns.
   b. The faculty should set examples for the teaching assistants. For example, if it is decided that the teaching assistants should be videotaped during the project to allow for constructive criticism of teaching techniques the faculty also should be videotaped.
5. The role and responsibilities of the project staff as a service agent should be defined.
   a. To provide information about the student body in the course.
   b. To organize mid-term feedback from students concerning course lectures, recitations, laboratories.
   c. To discuss videotapes of faculty and teaching assistants to illustrate features of teaching, such as response to questions, questioning students, etc.

d. To organize video-taping of recitation teachers, and a process by which video-tapes are reviewed.

General Discussion:

This point touches on an important concern in the consulting process--defining the roles and responsibilities of the faculty and the project staff in teaching assistant training. Our view is that faculty agree to delegate some of their authority for teaching assistant training to the project staff, but maintain their responsibility for the supervision of the teaching assistants in their ongoing teaching responsibilities. Thus the communication between faculty and project staff needs to be quite good. The place to start this communication is an initial sharing of goals and ideas for working with teaching assistants. Examples of goals are improving the quality of recitation teaching, having lab teaching assistants explain the laboratory work more effectively, improving questioning skills and discussion skills. Clearly there are many avenues for reaching such goals, and the project staff should be ready to suggest some to the faculty. However, the staff would do well to listen to the faculty members suggestions as well as their reactions to ideas of ways to accomplish goals, because the support of the faculty is necessary for the successful implementation of these ideas. For example, in one course the faculty were very interested in having teaching assistants video-taped in their classes. Because the faculty were behind this idea, they were willing to serve as examples and to be video-taped themselves. Then, with the agreement of one of the faculty members, his video-tape was used as an example of the process when it came time to encourage the teaching assistants themselves to be video-taped.

Having agreed on the goals and outlines of a cooperative effort for teaching assistant training, it is important for the faculty to introduce

the project staff to the teaching assistants in the course, and to express their support for the project. This introduction should occur prior to the start of the course, if possible a number of weeks before the course begins, so that there is an opportunity for teaching assistants to adjust to the idea of a training program. At this introductory meeting, project staff should indicate their experience in both teacher training and in the general subject matter of the course. For example, one's participation in training of chemistry teaching assistants will appear more legitimate to teaching assistants (and perhaps to faculty also) if one has a background in science or in engineering.

In this initial discussion among teaching assistants, faculty, and project staff, one should discuss the possible activities and requirements of the project. (it is useful for faculty to indicate that they consider participation in the training part of the teaching assistants course responsibility.) In this regard, it is likely that teaching assistants will be concerned about the amount of time which will be required of them. Teaching assistants must be reassured that the time requirements will not be excessive.

The faculty should indicate the nature of the sharing of responsibilities among faculty and staff. Teaching assistants need to know to whom they are responsible in regard to teaching (namely faculty) and in regard to teacher training (project staff).

If the faculty and project staff have agreed on a number of activities for the training process, it is helpful to mention a few of them at this initial meeting. In particular, one should discuss activities which might initially be somewhat threatening, such as video-taping of teaching assistants. The faculty and staff should be supportive of

teaching assistants reactions to the threatening nature of some activities, thereby developing a helpful rather than confronting relationship among faculty, staff and teaching assistants.

In planning for the project, faculty and staff should discuss the content and length of the initial workshop if one is planned, and the frequency and scheduling of meetings during the project.

MODULE 7

CONSULTING WITH COURSE STAFF

Introduction:

Following the initiation of consultation between project staff and faculty, it is important that continuous consultation be maintained throughout the semester. This module addresses that form of consulting.

Objectives:

During the course, the project staff serves as a support agency, with the primary objective of creating the opportunity for teaching assistants and faculty to discuss teaching issues. The consultants' work with the course staff occurs primarily in group meetings with faculty and teaching assistants.

Procedure:

1. Schedule group meetings at approximately biweekly intervals during the semester, for one hour per meeting. These meetings should be independent of, and in addition to the occasional staff meetings.
2. Serious discussion of teaching issues should be started at a meeting of course staff about one week after the course begins.

   At this meeting, the consultants are in a sense proving their worth to the course staff. Therefore, it is useful to be of obvious service. For example this is a good time for the consultants to acquaint the teachers with the characteristics of the student population in the course. This information can be obtained by talking to the person responsible for student advising in the college in which the students are

registered. It is important to remember that teaching assistants and faculty often teach students from outside their own fields. Thus teachers need to become acquainted with the students' characteristics. For example, what year are the students? What other courses are they taking? What courses are prerequisite to this course? How do most of the students feel about taking this course? Is the course required or optional for these students?

A second helpful thing one can do is to acquaint the teaching assistants and faculty with the resources which are available on campus for helping students. In addition, one can point out the person or persons whom teachers can notify or contact for help if they sense that a student is in serious difficulty. One such person is the director of student advising and counseling in the student's college. Danger signs for students such as lack of attendance, failure to turn in homework, etc. should be mentioned with strategies offered for finding out whether the students are in real difficulty.

These two areas of discussion should provide enough information so that teachers can better understand their students' interests and needs. They also should be sufficiently interesting to provoke discussion among the teaching assistants and faculty.

4. At the next scheduled meeting, make arrangements for a mid-term student evaluation of teachers. The details of this process are discussed in Module 12 "Student Evaluation of Teaching Assistants". One might also try to elicit teaching

assistants comments on their experiences in the classroom at this early stage in the course.

4. At the next group meeting one could begin the process of video-taping and review. One way to do this is to video-tape one of the course faculty and use this tape in the group meeting to illustrate a teaching issue, such as questioning styles. We found this is a very useful practice in three respects. First, the faculty member made a good appearance on the tape and did not appear bothered by having the camera in his classroom. Second, by using the tape in a constructive rather than destructive fashion--that is, pointing out good features and suggesting possible areas of improvement without harsh criticism--the teaching assistants saw an example of our style of video review. Third, the teaching assistants learned some pointers on questioning styles.

   After discussing a tape in this fashion, one should ask teaching assistants and faculty to sign up for a specific date and time for their classes to be video-taped. One ca also ask them to indicate whom they would like to serve as the person reviewing the tape with them. This could be either a member of the consulting team, a faculty member, or a fellow teaching assistant. The video-tape process will probably need to be spread over a few weeks. We found that most of the teaching assistants found the experience valuable and that faculty as well as teaching assistants learned from seeing themselves on tape.

5. Meeting to Consider Specific Course Problems. About the middle of the term, one may begin to encounter problems specific to this course group. It is important to see that these problems are aired. For instance, we had the experience that our agenda for a meeting was superseded by the desire of a faculty member to discuss the nature of the topics included in the course. Because we considered our role to include facilitating communication between teaching assistants and faculty, we were happy to encourage this discussion.
6. Other possible topics for these group meetings include the use of objectives, problem solving techniques, the use of questions of different types, methods for teaching in an open laboratory, the rationale for the course and so forth. In choosing topics one should be careful to choose those pertinent to the particular course and to the levels of experience of the teachers. By means of both structured and unstructured discussions one should attempt to increase communication among the course staff.

EVALUATION OF THE CONSULTATION PROCESS

A useful method for evaluating the consultation process is to discuss the successes and failures of the term's activities in the last group meeting. One way to do this is to ask the teaching assistants and faculty to give their reactions to specific areas that were treated, such as the discussion of the characteristics of the students, or the video-taping and review process. One should ask teaching assistants and faculty whether the course staff functioned differently than the usual pattern. For example, it is very useful to know whether the teaching

assistants and/or faculty discussed teaching issues outside the group meetings more often than is characteristic of other courses.

MODULE 8

VIDEO TAPING TEACHING ASSISTANTS

Introduction:

Studies indicate (Heaton, 1975) feedback in terms of current performance is a way of enhancing the effectiveness of teaching assistants. Certainly one of the most powerful ways of providing feedback is through actual video taped performance.

There are, in addition to the mechanics of the video-taping itself, several considerations to be borne in mind, if the medium is to be used with optimum effectivenss. The crucial issues are identified and discussed.

Purpose:

The purpose of this module is to increase the effectiveness of teaching assistants by video taping their classes and discussing their methods and performance.

General Statement:

To be video taped can be an intimidating experience as it provides a faithful reproduction of all that happens. Furthermore, many people concentrate upon what they perceive as less than satisfactory in their performance to the exclusion of what they do well.

As a result the idea of being video taped is perceived as the basis for a fault-picking or blame-fixing experience. It is essential, therefore, in both the presentation and subsequent follow through, to emphasize the "educational neutrality" of the experience. It should be a means of feedback, not of "evaluation" in the sense of establishing blame.

Since faculty in a course have the evaluative capacity in one form or another, their participation becomes essential if teaching assistants

are to have freedom from threatened censure which ultimately makes video taping an effective, less threatening experience.

It is difficult to participate in an unfamiliar experience if there is a lack of clarity concerning how the results will affect the individual.

Raising questions and helping to define goals and strategies is a useful way of conceptualizing the experience in a useful manner. The aim should be to articulate goals and strategies with an awareness of instructor and student interchanges. This, in turn provides a basis for considering options available to the instructor. To develop the ability or awareness or these issues (as well as options) is, in itself, a strong motivation to use what appears most effective.

Timing:

The ideal situation would be to have two video tapings one third and two thirds of the way through the course. This allows modifications suggested by the first experience to be applied and improvement in style, techniques, etc. to be noted on the second.

If two tapings are not possible one taping and review allowing time for application during the term is appropriate. Clarity of non-punitive aims is essential. An effective way of promoting it is through the following utilization of course faculty.

Faculty Participation:

As a means of providing a constructive atmosphere teaching faculty may also be video taped. Their willingness to be video taped is a sure indication that they regard the experience as helpful and constructive.

Preliminary analysis of a previously video taped faculty performance can prove very instructive not only with respect to what is learned from a video example but also as a way of demonstrating the method and/or style

by which the tapes will be reviewed. It provides an opportunity for a learning experience and takes some of the mystery out of what will happen.

Reviewing Procedure:

Three methods of reviewing tapes have been evaluated. It is essential that the tapes be reviewed with someone other than the participant to provide the opportunity for dialogue: The most effective means for learning from the tapes is when faculty, peers (other teaching assistants) and a third party or outside consultant were the reviewers. Initial results indicated that the third party reviewer was helpful. Perhaps because of neutral status and increased familiarity with a helpful method of review. Nonetheless, all three appear feasible as reviewers if they understand a constructive procedure.

Whatever the ultimate method chosen the review need not become an evaluation of the deviation or adherence to a certain set standard. Rather the reviewer can use the various class interchanges, presentations and situations to raise open ended questions about the teachers goals, and student interaction and awareness. Helpful commentary can also be provided by sharing how the observer experiences the style; confusing, clear, helpful, etc.

Review should not be done immediately following the taping. At that time neither the teaching assistant nor the consultant can be objective and both tend to recall what they think was done rather than what the tape shows was done.

MODULE 9

PROBLEM SOLVING

Introduction:

Teaching assistants in the sciences and engineering find that much of their instructional duty involves helping students solve quantitative problems. To accomplish this effectively, the teaching assistant must develop and use a philosophy of problem solving techniques. This module will help the teaching assistant to recognize how students react to problem solving techniques.

Purpose:

To have teaching assistants understand the techniques of teaching problem solving and to apply these techniques to their classroom activities.

Procedure:

Teaching assistants should have some experience meeting small recitation classes prior to undertaking this module.

The module involves viewing two videotaped sequences of an experienced teaching assistant conducting a recitation class in which quantitative problems are solved. In videotaped discussion between the teaching assistant and an educational consultant following the class, the teaching philosophy of the teaching assistant is reviewed and the effect of his teaching techniques on the class are studied.

An effective method for conducting this module is to have teaching assistants discuss with the educational consultant how they would handle the presentation of a quantitative problem to a recitation class, then view the first videotape of a teaching assistant in action. This should be followed by a general discussion of what the instructor did well, and how his effectiveness could be enhanced. The teaching assistants should

then view the post-class analysis conducted by the instructor and the consultant.

The second videotape of the presentation of a more difficult quantitative problem to the students by the experienced teaching assistant and the subsequent analysis by the teacher and the educational consultant should follow.

Note: Since there is no one correct way to teach problem solving, the video tapes and discussion should be considered as presentation of successful models. Other approaches can be equally successful.

MODULE 10

HELPING STUDENTS IN DIFFICULTY

Introduction:

A University or College is an institution where responsibility is usually not clearly defined, or is defined very broadly. One area in which responsibility often is not well defined, is that for providing assistance to students who are having difficulty. While faculty are responsible for teaching and instruction, they ignore the problems of students having difficulty. The faculty can assume this responsibility personally or make it the province of others. Since teaching assistants are often closest to students, this task may be assigned to them, or it may fall to them by default. Whether assisting such students is a problem requiring a formalized program is a moot point: these students are with us, and even though we wish they would go away, someone has to deal with them. Who?

Purpose:

The purpose of this module is to have course personnel discuss the role of the teaching assistant in helping students who have difficulty. This includes not only assigning or accepting responsibility, but recognizing why students experience difficulty and what might be done to help them.

Objectives:

The following are not behavioral objectives *per se* because the main thrust is not learning specific skills as much as it is raising consciousness. The points listed below are crucial:

1. Have teaching assistants recognize that helping students in difficulty is not a fixed responsibility but is negotiable (if it is for this course).

2. Have teaching assistants negotiate, or receive from the course superviser (faculty), a general understanding of who has specific responsibility for helping such students in this course.
3. Have teaching assistants agree on how they will meet their responsibility. This includes:
   a. Scheme for determining who needs assistance.
   b. Description of any formalized help program (extra recitation sessions).
   c. Generation of additional informal help programs (individualized tutoring, etc.).
   d. Exploration of creative approaches (brainstorming).
4. Have teaching assistants realize behavior patterns common to those who need help.
5. Have students become aware of other resources, persons or agencies on campus whom they can elist in helping a student.
6. Have teaching assistants consider the triage problem. How do you determine where to put your effort?

General Preparation:

This exercise is best accomplished in a group including all course personnel. Plans should be discussed with the course supervisor or faculty member(s) in advance, so that they are aware that their opinion on responsibility will be asked for. It should also be determined in advance whether they consider this a negotiable point.

The meetings are usually most successful if done in a small room, around a circular table, so that there are no obvious leaders. It a rectangular table is used, remove the chairs from the end.

This meeting can vary drastically in the amount of time required. An hour is usually minimal. It is best to choose a time that is somewhat

open-ended, so that half the group doesn't leave when the hour is up.

The leader is responsible for planning an agenda, presenting the points to be considered, keeping the discussion germane, and holding to a time schedule. If the leader is not familiar with working with students who have academic problems, he should (take the responsibility for) invite an appropriately experienced person as a group resource.

Suggested Discussion Points and Exercises:

1. The first point of discussion should be: Who has the responsibility for assistance? or "What is the responsibility of each person connected with this course?" Usually no one will know the answer, it is best to preface these questions with an introduction to the problem similar to the one at the opening of this module. When you raise the key question after your introduction, assistants will usually turn and look at the professor. He/she should be prepared for this. If that person has a strong idea, he should present it. If not, he might say: "That's a good question: I don't have a hard and fast answer. Maybe we should discuss it informally." If that is agreeable, call for informal opinions, giving your own ideas if necessary to begin the discussion. This discussion should be general rather than specific. When it becomes specific move on to 2.
2. Raise the question of consensus. "Do we need to argue on these points, or on a minimum assistance program?" Point up the fact that if each teaching assistant does it differently, students in the course are treated unfairly. Work to get teaching assistants to agree to a minimum level so that there is some degree of uniformity. That could be done by listing individual

minimums on newsprint or a blackboard. By raising the question, the point will be made.

3. Have the assistants discuss the causes and cures of academic difficulty. This can be stimulated fairly easily by asking: In your opinion, why do students have trouble and what is successful in helping them back on the track? Again, it may be helpful to list these items in two columns on newsprint or on the blackboard. Some items you may want to stimulate if they do not occur spontaneously: inadequate background, poor at required skill (such as math), heavy course load, poor study habits, anxiety in taking examinations, poor understanding of essential concepts. Suggestion: try to keep these focussed on academic causes.

4. Raise the question of underlying causes. That is, "Does it sometimes happen that events outside the course influence performance? Have any of you ever known of students who failed because of a family death?" The idea is to get the assistants into a discussion of academic problems brought on by events beyond control, and to think about various kinds of things that cause these kinds of problems. "Who can best solve these problems?" You should be prepared with a resource list--such as mental health facilities, etc. Help assistants get into the notion of the importance of discovering the why behind the observed poor performance, and to recognize that often the why is not trivial, and far beyond the scope of a teaching assistant's expertise.

5. Raise the question: "How can we recognize students who are having difficulty?" One obvious way is performance on objective measure: problem sets, quizzes, examinations. What are the shortcomings of this method? Often it takes too long to make the determination; by the time one is sure, nothing effective can be done. Are there other ways? Are there distinguishing behavior patterns of students in difficulty. There seem to be at least two--and these may help initiate discussion.

   a. The ghost. Students who don't attend the first classes, don't turn in homework, or come but don't answer questions, etc. What to do when these sysptoms are observed? This should be decided by teaching assistants, and be consistent with their view of responsibility. Some alternatives: call student directly, contact his resident adviser, contact his faculty adviser, do nothing.

   b. The clinging vine. The student who sits in front of the class, asks continual questions. Pesters you after class. Wants help with problem sets. Seeks list of available tutors. What should one do for these symptoms? Call faculty adviser and check on past performance? Call student directly? Call resident adviser? Do nothing at all? Refer student to resource to discuss need for this behavior?

6. Present resource person to sum up discussion, share experiences and observations. This person may want to pass on hints, or point out various recources that are available. May also want to comment on different types of therapy or course of action that seems most successful for given symptoms or behavior patterns.

7. As "homework" present triage problem. In any given situation in which there are casulaties and manpower is short, how do you determine who you want to save? Where do you allocate manpower and resources? How do you define who is "savable"? Who makes this definition? Is it better to spend time with students making D?

MODULE 11

TEACHING TRIADS

Introduction:

Most new teaching assistants have had no teaching experience, no educational theory, and no opportunity to observe other teachers without having the intimidation of being part of the teacher's class. The teaching triad device provides actual experience in teaching, observing, and criticizing.

Purpose:

To provide an actual teaching-learning experience for all participants, particularly new teaching assistants, which will enhance their awareness of the important group dynamics occuring in this situation.

To provide everyone with the opportunity to be the expert, the student, and a critical observer.

To recognize and help develop effective teaching-learning situation.

Procedure:

The basic grouping is a triad (3 people). The assignments A-teacher, B-student, C-observer will be rotated so that each person will experience interacting in the various roles. After each teaching learning experience the participant will have the opportunity to record their reaction privately to be used in a later discussion which will conceptualize this experience.

Design of Module:

Time	What to do
5 min.	Get acquainted with your triads by introducing yourself as fully as you desire.
5 min.	Prepare a five minute presentation on whatever you like eg. waterskiing, airplanes, cooking, plasma physics, bicycling, etc.
2 min.	Decide who in each triad is A, B, C. (If you try to do this by concensus it might take the rest of the day).
5 min.	Explain initial functions of A, B, and C. A-Teacher, B-Student, C-Observer. a. Teacher will have 5 min. to make a presentation to the student. b. After 5 min. there will be a 2 min. question period. c. After 7 min (total elapsed time 5 + 2) there will be a 2 min. period when the teacher must paraphrase the students question (to the satisfaction of the student) before the teacher can proceed with his response. d. The observer will keep time, make notes on the teaching learning interaction and enforce the ground rules on the (perhaps fuzzily explained) design. The observer should note helpful actions by the teacher as well as blocks to learning which appear. (might use a guided response sheet) e. After 9 min. each person will complete a private reaction sheet, to be used privately after all have had a chance to teach, as reference for discussion. The sheet will include notes on effectiveness of communication (helps/blocks/, emotional reactions, other non-verbal quever, etc. f. Repeat a - e with assignments rotated. g. Repeat a - e with assignments rotated.
15 min.	Processing teaching triad experience a. What happened - (1) Did you learn anything (a) Content (b) About teaching (what helps) (what hinders)

b. Generate date on newsprints -

HELPS HINDERS

MODULE 12

STUDENT EVALUATION OF TEACHING ASSISTANTS

Introduction:

In our experience, a program of student evaluation of teaching assistants can be an effective method for improving instruction. In this module, guidelines will be presented for the following aspects of such a program:

1. the purpose of evaluation by students
2. sources of evaluation items
3. the criteria for selection of evaluation items
4. procedures for conducting the evaluation
5. methods for providing feedback to teaching assistants

Purpose:

Student evaluation of instructors may serve many purposes, including feedback from students to the instructor, establishment of norms whereby instructors can be judged, and assistance to students in course selection. In a teaching assistant training program, student evaluation of instructors should emphasize the first of these purposes--the improvement of teaching by means of feedback of evaluations to teaching assistants. The primary concern is improving instruction, rather than judgment about teachers. This purpose controls the evaluation process in a number of major respects, including the timing of the evaluation, the types of items selected, the form of feedback, and the confidentiality of the results.

The timing of the evaluation should maximize the possibility for teaching assistants to act on the information feedback they receive. Thus the feedback ought to occur by mid-term, rather than at the end of the term.

The items selected ought to be specific rather than global in character so that the teaching assistant has guidance on ways to improve with respect to each item. It is helpful in this regard for the teaching assistants to see the evaluation items very early in the term so that they learn what aspects of teaching are considered important and so that they become acquainted with certain teaching characteristics which haven't previously concerned them. The form of feedback ought to give teaching assistants their own results and a means of comparison with peers, and some indication of ways of improving teaching in those areas where problems are apparent. Finally the evaluation should be conducted in a manner which preserves the confidentiality of the results. It will be much easier for teaching assistants to cooperate with an evaluation and to benefit from the feedback if they know that their weaknesses will not be exposed to their peers or to their supervisors.

Sources of Evaluation Items:

A large number of student evaluation forms have been developed. These provide an excellent source for selection of items.

A comprehensive study of evaluation items was conducted by the Center for Research and Development in Higher Education at the University of California at Berkeley. Their handbook Evaluating University Teaching[1] is a useful source of items. Their work also points out the need for a fairly broad scale of allowed responses to items (e.g., a range of 1 to 7) due to student's tendency to use only the upper half of rating scales.

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[1]M. Hildebrand, R. C. Wilson, and E. R. Dienst, Evaluating University Teaching, (Berkeley, California: Center for Research and Development in Higher Education, 1971).

Another source of items is the Midsemester Student Instructional Report which was developed by the Educational Testing Service. Centra[2] has reported the results of using this questionnaire as part of a feedback process.

Other sources of items are the many evaluation questionnaires which have been developed for use at individual colleges or universities. These include the Confidential Guide Student Questionnaire used at Rennselaer Polytechnic Institute, the Course and Faculty Evaluation Questionnaire used at Queens College of the City University of New York, and the Cornell Inventory for Student Appraisal of Teaching and Courses. Additional information about the development of the program is given in Appendix A.

Criteria for Selection of Evaluation Items:

The purpose of student evaluation of teaching assistants, namely improvement of teaching by means of feedback, provides the first criterion for item selection. This is the criterion that all items be sufficiently specific in character so that the teaching assistants will understand what behaviors they need to change to obtain better evaluations. For example, a global item such as "Overall, how would you rate the discussion leader?" may be of some use to a person seeking to compare instructors, but is of little use to a teaching assistant who wants to learn how to improve his or her teaching. A specific item such as "Does the teacher present material in a well-organized manner?" would be more useful in providing guidance to an individual.

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[2]J. A. Centra, "Do Student Ratings of Teachers Improve Instruction?" Change (April 1973), 12.

A second criterion is based on subjective views of important teacher attributes. Decision must be made about which aspects of teaching are most important for evaluation. Clearly all aspects of teaching cannot be evaluated. In this regard, items related to the five factors identified by the Berkeley Study (see footnote 2) should be considered. These factors are:

1. analytic/synthetic approach
2. organization/clarity
3. instructor-group interaction
4. instructor-individual student interaction
5. dynamism/enthusiasm.

Grouping items according to these categories and then selecting the most pertinent items within each category works well. In addition it is useful to include some performance requirements on an evaluation form. One such item might be "The amount of effort I invest in this course is

1 = very little 5 = very great."

Items of this type give the teaching assistant a context for the students' evaluations. For instance, a teaching assistant might justifiably interpret students' ratings of his or her teaching differently depending on the amount of effort students invest in the course as a whole.

An evaluation form for recitation instructors which was developed utilizing the criteria discussed here is included in Appendix B.

Procedures for Conducting the Evaluation:

Appropriate procedures for carrying out a student evaluation of teaching assistants vary with the nature of the group with which one is working. First consider procedures for a group of teaching assistants who

teach a single course. Then consider how the procedures should differ for teaching assistants who teach diverse courses in a single department or in various departments.

Teaching assistants in a single course present a fairly ideal situation for providing evaluative feedback from students to teaching assistants. The situation is particularly good if the faculty in the course are willing to be evaluated along with the teaching assistants. Working with teaching assistants and faculty in a single course allows focus of the evaluation on aspects of teaching which are important in that specific course. Further, "norms" for evaluation derived from the evaluations of all the teachers in the course can be developed.

The first step in a student evaluation feedback program in this case should be an "early warning". That is, at the start of the term discuss with the teaching assistants and faculty those aspects of teaching to be evaluated. This may be accomplished by distributing a list of possible items from which the questionnaire items will be selected. The teaching assistants and faculty then make recommendations for choice of items. Alternatively, questionnaire items may be selected and then the final instrument distributed.

The major purpose of early discussion of questionnaire items is to point out important aspects of teaching to teaching assistants, and thereby to make them aware of these in their teaching.

The second step in the procedure is to have the teaching assistants' agree to participate in the feedback program. Clearly, the success of a feedback program is dependent on the cooperation of the teaching assistants and faculty involved in the program. Thus at an early stage in the term the teaching assistants and faculty should agree to participate.

Seek agreement for participation by the second or third week of the term. At this time, describe the planned feedback program with teaching assistants and faculty, probably at a group meeting. If the faculty want all teaching assistants to participate and will themselves agree to participating in the program, they should express this to the group.

The person or persons who will conduct the evaluation should discuss the purpose of the evaluation, the timing and procedures by which the evaluation and feedback will be conducted, and the degree to which evaluations will be kept confidential. By the end of the meeting, teaching assistants and faculty should be asked to signify their willingness to participate in the program.

The timing and procedures by which the student evaluations are obtained are the next steps to consider in the feedback process. The evaluation process should occur about four weeks into the term so that student feedback can be used by teaching assistants during the remainder of the term. It may also be useful to repeat the evaluation-feedback process at the end of the term for comparison purposes.

The questionnaire should be brief, so that it can be completed within ten minutes. Forms should be short enough so that the information from each student fits on a single computer card, and should include space for the name of the teaching assistant. As discussed earlier, items which are selected for use should be relatively specific, and a sufficiently broad range of responses should be allowed to counter students' tendency to use only the upper half of a rating scale.

The questionnaires should be given to the instructors for distribution to the students. Questionnaires should be completed by students during class time and collected by the instructor when they are complete.

The questionnaires should be returned to the person who is organizing the evaluation. All teaching assistants should distribute the questionnaire under fairly similar circumstances to assure that the teaching assistant results will be comparable. For example, the absence of the teaching assistant during the completion of the questionnaires may affect the results because students may be less generous if the teaching assistant is not present.

At this time, it is useful for teaching assistants to rate their own teaching, using the same form used by the students, and to provide this information to the person conducting the feedback for purposes of comparing the students' and the teaching assistants evaluation.

The next step in the evaluation process is the computer analysis of the questionnaires. Completed questionnaires should be coded for computer processing and data should be key punched or read by optical scanning equipment. The data may be analyzed using programs such as the Statistical Package for the Social Sciences (SPSS),[3] other available programs, or one's own program. Among the SPSS programs, the Codebook, Condescriptive, and Breakdown subprograms are particularly useful.

The data should be analyzed to obtain the means, standard deviations and number of responses for each questionnaire item, both for each participant and for the total group. The means for the total group may be used as "norms". This information can then be tabulated for return to the individual instructors. A more extensive analysis of the data would include the distribution of responses to each item.

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[3]N. H. Nie, D. H. Bent, and C. H. Hull, Statistical Package for the Social Sciences (New York: McGraw Hill, 1970).

If working with teaching assistants in diverse courses within a single department, a number of the steps described above may need to be modified. A single questionnaire form may be suitable if the courses are not dissimilar in teaching methods. However, it may be more difficult to include course faculty in the evaluation process if only a few teaching assistants from any given course are involved.

Once again, teaching assistants should see the questionnaire items early in the term. It is important that teaching assistants agree to participate, either at a group meeting or by written communication. Minimal faculty involvement may cause lower levels of teaching assistant participation in the program. Further, teaching assistants may feel less group pressure to participate than when everyone in their course participates.

The rest of the evaluation process can be managed as in the earlier example. However, the optimum timing for questionnaire distribution may differ in the various courses. Finally, it may be useful to develop separate "norms" for the teaching assistants in each of the different courses if there are enough teaching assistants in each course to make this feasible.

In regard to student evaluation of teaching assistants who teach courses in more than one department, the situation is similar to that of working with teaching assistants in various courses in a single department. However, even less mutuality of experience and purpose exists than in the former case because of the difference in subject areas. It will be more difficult to obtain agreement on common questionnaire items and on timing, and it is less satisfactory to use one set of norms for the entire group of teaching assistants. In this case it would be useful to provide norms

for the teaching assistants in each department.

Methods for Providing Feedback to Teaching Assistants:

There are two basic approaches to giving feedback to teaching assistants. The first is to give results to teaching assistants in printed form, with some explanation or comparative information included. The second is to discuss the results with each of the teaching assistants individually.

Feedback by means of tabulated results is quite straightforward. For example, completing the means, standard deviations and numbers of responses for each item questionnaire form for an individual teacher. The same information for the entire group of teaching assistants can be given on this form. If the teaching assistants have given their own self-evaluations, they should be returned for comparison.

If it does not seem feasible to discuss each teaching assistants evaluation with the individual, the teaching assistants (and faculty) may meet as a group with the consultant to review the evaluations. In this mode, it is more difficult to maintain the confidentiality of individual evaluations, but very important that confidentiality be respected. However the overall results may be used to initiate a discussion of students' attitudes toward the course. Individuals who wish to discuss personal evaluations with the consultant should be encouraged to do so.

Feedback by means of individual discussions with teaching assistants is very time-consuming but can be rewarding because individual evaluations may be reviewed in complete confidence. The type of written information discussed in the previous example is also useful for consultations, and in this case it could serve as the basis for the consultation. The teacher's

assessment of his or her own teaching may be compared with the average values of the ratings received from the students, with discrepancies being discussed and explained. This discussion allows teaching issues or classroom problems to be investigated in depth.

In addition, the teacher's evaluation may be compared with the "norms" for other teaching assistants in the same course. In this discussion avoid teacher discouragement by citing and discussing favorable comparisons as well as any unfavorable ones. Again, focus on teaching issues and of the classroom atmosphere. If the teaching assistant is willing, it is appropriate subsequently to video-tape the teacher and to review the tape with the teaching assistant, to continue the feedback process and to assure positive action toward improvement.

APPENDIX A

DEVELOPMENT OF THE QUESTIONNAIRE AND PROGRAM

The program is similar to one used by Pambookian at the University of Michigan. The purpose was to enable recitation (discussion) teachers to learn student feedback during the semester so that they could attempt to improve their teaching. Teachers were asked to rate their own teaching, in addition to being rated by students, so that each teacher would consider each of the teaching behaviors included on the questionnaire.

The questionnaire was developed by selecting items from five teacher evaluation questionnaires. Items were selected which covered six main factors of recitation instruction, i.e. analytic/synthetic approach, organization/clarity, instructor/group interaction, instructor/individual student interaction, dynamism/enthusiasm, and performance requirements.

An initial set of items drawn from the Berkeley Higher Education Center questionnaire was sent to one of the participating teaching assistants for his comments. These were taken into account in the final selection of items. The enclosed copy of the questionnaire lists the twenty items finally selected. Part A of the questionnaire asks students to rate their recitation instructor on the 20 items. Part B asks for information concerning the course difficulty and work load. Part C asks students to assess the importance of each of the 20 items from Part A.

During the 7th week of the semester, nine teachers voluntarily distributed the questionnaires to their classes for completion and return to the course consultant. Six were math teaching assistants, two were in chemistry, and one was in physics. In addition to the ratings from students, teachers included self ratings on items A 1-20, answered questions B 1-5 by

stating what they thought students would respond to these questions, and gave their own assessment of the importance of the items by completing Part C.

Methods of feeding back evaluative information to teachers were developed. These methods include (1) letting the teacher give a sense of what he encounters in the classroom, and (2) balancing off negative evaluations with those which appear to be more positive.

Data were analyzed and tabulated by means of SPSS computer programs. A record was made of each teaching assistants responses to the questionnaire, the mean value of his students' responses, and the overall mean value of the responses from all of the student respondents.

Teaching assistants were then individually given the results of the evaluations. Each session lasted about a half hour and began with a brief exploration of the nature of the course and of the type of students being taught. Then each teacher was given a tabulation including (1) the average ratings for all of the teachers for each of the 20 items; (2) the mean value of the students' assessment of the importance of each item; (3) the mean value of the students' assessment of the importance of each item; (4) the teacher's self-rating on each item; and (5) the average value of the students' rating on each item.

The discussion then centered on these tabulated results. Each teacher's assessment of the importance of the individual items was compared, at least in a general way, with the average value of his or her students' ratings of importance. Any large discrepancies were noted and discussed. Further, each teacher's rating of his or her own teaching was compared with the average value of the ratings received from students. Again any discrepancies were discussed. This comparison allowed an investigation

of the types of teaching being attempted by the teachers. For instance, one teacher received fairly good ratings on items related to personalization of the class and class discussion, but relatively low ratings on knowledgeability and class organization. This contrast became intelligible when the teacher explained that he had been attempting to personalize his mathematics class and to involve his students in discussion. Finally, different perceptions of the difficulty level of the course were discussed. These were learned from Part B of the questionnaire. Frequently teachers thought that their particular course was one of the most difficult that the students were studying, and learned that students felt otherwise.

Two teachers requested detailed results of their evaluations for each of their classes. In response they received a computer print-out of the frequency distribution of responses to each question in Parts A and B of the questionnaire for each of their class sections.

Typically each teaching assistant was asked questions about the structure of the course he or she was teaching, the degree of teaching assistant-faculty contact, and so forth. The appropriate suggestions were made to the teachers about ways to improve their teaching.

In assessing the process of evaluation and feedback the individual teachers involved considered the program useful. However, most of the teachers who volunteered for the evaluation were fairly experienced and were rated fairly highly by their students. Furthermore, the nine teachers evaluated initially were teaching in eight different courses, so that it was somewhat difficult to develop an overall picture of the functioning of any single course.

It would have been more fruitful to work with a group of teaching assistants in one course who were required or at least strongly urged to

participate. Then the two major difficulties with the present program, the voluntary and diffuse nature of the program, might be overcome. A mid-semester feedback is now included in all courses where the Teaching Effectiveness Program is used.

Sample Questionnaire:

The questionnaire developed at Cornell follows:

APPENDIX B

Recitation Instructor _____

Time of Class _____

A. Please indicate how well the following phrases describe your recitation instructor. Use a scale from 1 to 7, where

1 means "not at all descriptive"

and

7 means "very descriptive"

Use integers. If you have too little information to reply to an item, leave the corresponding space blank.

_____1. demonstrates that he or she is knowledgeable in the subject area

_____2. makes difficult topics easy to understand

_____3. discusses the aesthetic value of the subject

_____4. presents material in a well-organized manner

_____5. selects appropriate topics for discussion

_____6. has students apply concepts to demonstrate understanding

_____7. is accessible to students outside of class

_____8. makes helpful comments on written assignments

_____9. is well prepared for class

____10. identifies what he or she considers important

____11. emphasizes conceptual understanding

____12. encourages students to ask questions

____13. conveys enthusiasm about the subject

____14. is willing to explain something in another way if it is not clear at first

_____15. demonstrates genuine interest in students

_____16. answers questions satisfactorily

_____17. encourages students to share their knowledge

_____18. sets a pace for the class which is correct for you

_____19. expects high quality work

_____20. makes classes intellectually stimulating

B. The following five items relate to the course as a whole. Please rate each item on a scale of 1 to 5 as indicated.

_____ 1. The amount of effort I invest in this course is

1 = very little 5 = very great

_____ 2. The amount of work required for this course, in relation to other courses, is

1 = much less than for most of my courses
5 = much more than for most of my courses

_____ 3. The difficulty level of this course is

1 = much easier than for most of my courses
5 = much harder than for most of my courses

_____ 4. My interest level in this course, in comparison to other courses I am taking, is

1 = much lower than in other courses
5 = much greater than in other courses

_____ 5. The reason I registered for this course is

1. it sounded interesting.
2. I was interested and it is required.
3. simply because it is required.

EVALUATION OF QUESTIONNAIRE FOR ONE COURSE

P214 Midsemester Student Feedback

A. Please indicate how well the following phrases describe your recitation instructor. Use a scale from 1 to 7, where

1 means "not at all descriptive"
and
7 means "very descriptive."

Use integers. If you have too little information to reply to an item, or it seems irrelevant, leave the corresponding space blank.

N	σ	M	
286	.92	6.13	1. demonstrates that he is knowledgeable in the subject area
285	1.33	5.07	2. makes difficult topics easy to understand
259	1.64	4.48	3. discusses the aesthetic value of the subject
287	1.37	5.33	4. presents material in a well-organized manner
285	1.23	5.72	5. selects appropriate topics for discussion
244	1.50	4.21	6. has students apply concepts to demonstrate understanding
284	1.45	5.10	7. is accessible to students outside of class
257	1.77	4.55	8. makes helpful comments on written assignments
285	1.19	5.80	9. is well prepared for class
285	1.16	5.77	10. identifies what he considers important
278	1.23	5.57	11. emphasizes conceptual understanding
282	1.14	5.78	12. encourages students to ask questions
282	1.37	5.42	13. conveys enthusiasm about the subject
279	1.12	5.86	14. is willing to explain something in another way if it is not clear at first
265	1.24	5.43	15. demonstrates genuine interest in students
284	1.24	5.49	16. answers questions satisfactorily
249	1.49	4.58	17. encourages students to share their knowledge in class
272	1.42	5.36	18. sets a pace for the class which is correct for you
238	1.17	5.37	19. expects high quality work
267	1.38	4.88	20. makes classes intellectually stimulating

B. The following six items relate to the course as a whole. Please rate each item on a scale of 1 to 5 as indicated:

N	σ	M
288	.89	3.35
288	.86	3.46
287	.80	3.62
287	1.12	2.81

1. The amount of effort I invest in this course is

   1 = very little 5 = very great

2. The amount of work required for this course, in relation to other courses, is

   1 = much less than for most of my courses
   5 = much more than for most of my courses

3. The difficulty level of this course is

   1 = much easier than for most of my courses
   5 = much harder than for most of my courses

4. My interest level in this course, in comparison to other courses I am taking, is

   1 = much lower than in other courses
   5 = much greater than in other courses

5. The reason I registered for this course is

   _____ 1. It sounded interesting.
   _____ 2. I was interested and it is required.
   _____ 3. simply because it is required.

6. Lecture and recitation are

   _____ 1. very well coordinated
   _____ 2. moderately well coordinated
   _____ 3. not well coordinated

C. On a scale of 1 to 7 please indicate how well the following phrases describe the course lecturer.

1 means "not at all descriptive"
and
7 means "very descriptive."

276	1.43	5.41
276	1.51	3.16
253	1.68	4.51
277	1.77	4.39
252	1.59	4.63
218	1.70	3.64
143	1.67	3.29
119	1.61	2.40
277	1.52	5.27
264	1.84	4.12
278	1.86	4.28
262	1.62	3.45
277	1.70	4.39
243	1.61	3.77
261	1.66	3.73
257	1.66	3.80
242	1.52	2.68
263	1.67	4.06
177	1.55	4.77
272	1.77	3.43

1. demonstrates that he is knowledgeable in the subject area
2. makes difficult topics easy to understand
3. discusses the aesthetic value of the subject
4. presents material in a well-organized manner
5. selects appropriate topics for discussion
6. has students apply concepts to demonstrate understanding
7. is accessible to students outside of class
8. makes helpful comments on written assignments
9. is well prepared for class
10. identifies what he considers important
11. emphasizes conceptual understanding
12. encourages students to ask questions
13. conveys enthusiasm about the subject
14. is willing to explain something in another way if it is not clear at first
15. demonstrates genuine interest in students
16. answers questions satisfactorily
17. encourages students to share their knowledge in class
18. sets a pace for the class which is correct for you
19. expects high quality work
20. makes classes intellectually stimulating